

AMENDMENT TO THE CLAIMS

1. (Currently Amended) A sintered sliding member comprising a back metal and a ferrous sintered sliding ~~body which is combined~~ body, the ferrous sintered sliding body being connected to the back metal,

wherein said ferrous sintered sliding body comprises martensite phase having ~~prepared~~ ~~to have~~ a solid soluble carbon concentration of 0.15 to 0.5wt% and contains carbide in a content of 5 to 50% by ~~volume~~ volume,

wherein said ferrous sintered sliding body includes a sliding surface, and

wherein said ferrous sintered sliding body is formed with at least one of closed pores and recesses at the sliding surface in an area ratio of 1 to 10%.

2. (Cancelled)

3. (Currently Amended) The sintered sliding member according to claim 1,

~~wherein said ferrous sintered sliding material contains one or more elements selected from the group consisting of Cr of 9wt% or more, Mo of 3.5wt% or more, Mo and W in a total amount of 4.5wt% or more, and V of 3wt% or more so that said martensite phase contains one or more carbides selected from the group consisting of Cr₇C₃-type carbide, M₆C-type carbide, and MC-type carbide dispersed therein.~~

wherein said ferrous sintered sliding material contains at least one element selected from the group consisting of Cr of at least 9wt%, Mo of at least 3.5wt% , Mo and W in a total amount of at least 4.5wt%, and V of at least 3wt% such that said martensite phase contains at least one

carbide selected from the group consisting of Cr₇C₃ carbide, M₆C carbide, and MC carbide dispersed therein.

4-14. (Cancelled)

15. (Currently Amended) The sintered sliding member according to claim 1,
~~wherein a composition of said ferrous sintered sliding body is adjusted so as to contain one or more carbides selected from the group consisting of Cr₇C₃ type carbide, M₆C type carbide and MC type carbide, which are coarsened to have an average grain size of 40μm or more, dispersed and precipitated therein in a content of 3% or more by volume by adding Cr powder, Mo powder, W powder, V powder or ferrous alloy powder contained high alloying element.~~

wherein a composition of said ferrous sintered sliding body contains at least one carbide selected from the group consisting of Cr₇C₃ carbide, M₆C carbide and MC carbide, said at least one carbide being coarsened to have an average grain size of at least 40μm, dispersed and precipitated therein in a content of at least 3% by volume by adding Cr powder, Mo powder, W powder, V powder or ferrous alloy powder contained high alloying element.

16. (Currently Amended) The sintered sliding member according to claim 3,
wherein said ferrous sintered sliding body contains at least one element ~~one or more elements~~ selected from the group consisting of Ni of 1 to 5wt%, Mn of 1 to 2wt%, Co of 2 to 12wt% and Al of 0.2 to 1.5wt%.

17. (Original) The sintered sliding member according to claim 16,

wherein said martensite phase contains retained austenite phase dispersed therein in a content of 5 to 40% by volume.

18. (Original) The sintered sliding member according to claim 1,

wherein said ferrous sintered sliding body contains at least one of P of 0.1 to 1.5wt% and B of 0.01 to 0.2wt% so as to contain one or more compounds selected from the group consisting of Fe₃P, Cr₂P, FeMoP, V₂P, and FeTiP dispersed therein in a content of 10% or less by volume.

19. (Original) The sintered sliding member according to claim 1,

wherein said ferrous sintered sliding body contains Cu based alloy, containing one or more elements selected from the group consisting of P, Sn, Al, Fe, and Ni, dispersed therein in a granular form in a content of 1 to 10% by volume.

20. (Currently Amended) The sintered sliding member according to claim 18,

wherein said ferrous sintered sliding body contains at least one of Mo metal particles, W metal particles and graphite particles dispersed therein in a content of 1 to 10% by volume, ~~in~~ ~~which~~ said dispersed particles being ~~are~~ surrounded with Cu or Cu alloy phase.

21. (Original) The sintered sliding member according to claim 3,

wherein said ferrous sintered sliding body is formed with closed pores scattered therein in a content of 1 to 10% by volume, said closed pore having an average size of 0.03 to 3.0mm.

22. (Currently Amended) The sintered sliding member according to claim 3,

wherein said ferrous sintered sliding body is formed with recesses scattered ~~at a~~ at the sliding surface thereof in an area ratio of 3 to 10%.

23. (Original) The sintered sliding member according to claim 1,

wherein said martensite phase comprises tempered martensite phase tempered at 150 to 600°C.

24. (Currently Amended) The sintered sliding member according to claim 1,

wherein said back metal comprises a cylindrical member and a collar formed at one end surface of the cylindrical member, said collar having a sliding surface, and

wherein said ferrous sintered sliding body ~~having~~ has a thickness of at least 0.5 mm.
~~0.5mm or more is combined to said sliding surface.~~

25. (Currently Amended) A sintered sliding member comprising a back metal and a ferrous sintered sliding body, the ferrous sintered sliding body being connected to the back metal.
~~The sintered sliding member according to claim 1,~~

wherein said ferrous sintered sliding body comprises martensite phase having a solid soluble carbon concentration of 0.15 to 0.5wt% and contains carbide in a content of 5 to 50% by volume,

wherein said ferrous sintered sliding body includes a sliding surface,

wherein said ferrous sintered sliding body is formed with at least one of closed pores and recesses at the sliding surface in an area ratio of 1 to 10%,

wherein said ferrous sintered sliding body is formed into a doughnut shape and at least a part of an inner surface and an under surface thereof is sintering-bonded to said back metal, and

wherein ~~in which~~ a part of a bonded surface of said ferrous sintered sliding body and said back metal is formed with at least either one of ventholes and ~~or~~ grooves through which gas generated from the ferrous sintered sliding body at sintering-bonding is discharged.

26. (Currently Amended) The sintered sliding member according to claim 3,

wherein said sintered sliding member is a thrust bearing, ~~in which said ferrous sintered sliding body contains Cr₇C₃ type carbide, M₆C type carbide and MC type carbide dispersed therein in a total content of 5 to 25% by volume and said back metal has a hardness of Hv170 or more, and~~

wherein said ferrous sintered sliding body contains Cr₇C₃ carbide, M₆C carbide, and MC carbide dispersed therein in a total content of 5 to 25% by volume and said back metal has a hardness of at least Hv170.

27. (Cancelled)

28. (Currently Amended) The sintered sliding member according to claim 26,

wherein said back metal comprises a cylindrical member and a collar at one end surface thereof, said collar having a sliding surface, the sliding surface of the collar sliding under a thrust load, and

wherein said ferrous sintered sliding body is sintering-bonded to the sliding surface of said collar and a bushing is fixedly mounted to an inner surface of said cylindrical member, said bushing being made of porous sintered material which retains lubricating oil or lubricating compound of lubricating oil and ~~wax~~, wax filled therein.

29. (Original) The sintered sliding member according to claim 28,

wherein said porous sintered material is made of a material having the same property as said ferrous sintered sliding body.

30. (Currently Amended) The sintered sliding member according to claim 3,

~~wherein said sintered sliding member is a floating seal, in which said ferrous sintered sliding body contains Cr₇C₃ type carbide, M₆C type carbide, and MC type carbide dispersed therein in a total content of 20 to 40% by volume and said back metal has a hardness of Hv170 or more.~~

wherein said sintered sliding member is a floating seal, and

wherein said ferrous sintered sliding body contains Cr₇C₃ carbide, M₆C carbide, and MC carbide dispersed therein in a total content of 20 to 40% by volume and said back metal has a hardness of at least Hv170.

31. (Cancelled)

32. (Previously Presented) The sintered sliding member according to claim 30,
wherein said ferrous sintered sliding body is formed with closed pores scattered therein in a content of 3 to 10% by volume, said closed pore having an average size of 0.03 to 1.0mm.

33. (Currently Amended) The sintered sliding member according to claim 30,
wherein a seal surface of said floating seal is formed with recesses scattered therein in an area ratio of 3 to 10%, said recesses ~~recess~~ having a depth of 1mm or less in a width direction of said seal surface.

34. (Previously Presented) The ferrous sintered sliding member according to claim 30,
wherein said martensite phase contains retained austenite dispersed therein in a content of 5 to 40% by volume.

35. (Currently Amended) A connecting device comprising:
the thrust bearing of claim 26, and ~~a bearing made of a sintered sliding member according to claim 26 comprising a back metal and a ferrous sintered sliding body which is combined to the~~

~~back metal, in which said ferrous sintered sliding body has martensite phase, having a solid soluble carbon concentration of 0.15 to 0.5wt%, and contains carbide in a content of 5 to 25% by volume, and~~

another bearing to slide with respect to said thrust bearing.

36. (New) A sintered sliding member comprising:

a back metal; and

a ferrous sintered sliding body, the ferrous sintered sliding body being connected to the back metal,

wherein said ferrous sintered sliding body comprises martensite phase having a solid soluble carbon concentration of 0.15 to 0.5wt% and contains carbide in a content of 5 to 50% by volume, and

wherein said ferrous sintered sliding body is formed with closed pores scattered therein in a content of 1 to 10% by volume, said closed pore having an average size of 0.03 to 3.0mm.

37. (New) The sintered sliding member of claim 36, wherein said ferrous sintered sliding body contains Cr₇C₃ carbide, M₆C carbide, and MC carbide dispersed therein in a total content of 5 to 25% by volume, and

wherein said back metal has a hardness of at least Hv170.

38. (New) A sintered sliding member comprising:

a back metal; and

a ferrous sintered sliding body, the ferrous sintered sliding body being connected to the back metal,

wherein said ferrous sintered sliding body comprises martensite phase having a solid soluble carbon concentration of 0.15 to 0.5wt% and contains carbide in a content of 5 to 50% by volume,

wherein said ferrous sintered sliding body includes a sliding surface, and

wherein said ferrous sintered sliding body is formed with recesses at the sliding surface in an area ratio of 3 to 10%.

39. (New) The sintered sliding member of claim 38, wherein said ferrous sintered sliding body contains Cr₇C₃ carbide, M₆C carbide, and MC carbide dispersed therein in a total content of 5 to 25% by volume, and

wherein said back metal has a hardness of at least Hv170.

40. (New) A sintered sliding member comprising:

a back metal including a cylindrical member and a collar disposed at one end of the cylindrical member;

a ferrous sintered sliding body, the ferrous sintered sliding body being connected to the back metal; and

a bushing made of porous sintered material which retains lubricating oil,

wherein said ferrous sintered sliding body comprises martensite phase having a solid soluble carbon concentration of 0.15 to 0.5wt% and contains carbide in a content of 5 to 50% by volume,

wherein said ferrous sintered sliding body is formed with closed pores scattered therein in a content of 1 to 10% by volume, said closed pore having an average size of 0.03 to 3.0mm, wherein said collar includes a sliding surface for sliding under a thrust load, wherein said ferrous sintered sliding body is sintering-bonded to the sliding surface of said collar, and wherein said bushing is fixedly mounted to an inner surface of said cylindrical member.

41. (New) The sintered sliding member of claim 40, wherein said ferrous sintered sliding body contains Cr₇C₃ carbide, M₆C carbide, and MC carbide dispersed therein in a total content of 5 to 25% by volume, and wherein said back metal has a hardness of at least Hv170.

42. (New) A sintered sliding member comprising:
a back metal including a cylindrical member and a collar disposed at one end of the cylindrical member;
a ferrous sintered sliding body, the ferrous sintered sliding body being connected to the back metal; and
a bushing made of porous sintered material which retains lubricating oil,
wherein said ferrous sintered sliding body comprises martensite phase having a solid soluble carbon concentration of 0.15 to 0.5wt% and contains carbide in a content of 5 to 50% by volume,
wherein said ferrous sintered sliding body includes a sliding surface,

wherein said ferrous sintered sliding body is formed with recesses at the sliding surface of the ferrous sintered sliding body in an area ratio of 3 to 10%,

wherein said collar includes a sliding surface, the sliding surface of the collar sliding under a thrust load,

wherein said ferrous sintered sliding body is sintering-bonded to the sliding surface of said collar, and

wherein the bushing is fixedly mounted to an inner surface of said cylindrical member.

43. (New) The sintered sliding member of claim 42, wherein said ferrous sintered sliding body contains Cr₇C₃ carbide, M₆C carbide, and MC carbide dispersed therein in a total content of 5 to 25% by volume, and

wherein said back metal has a hardness of at least Hv170.